

Supplementary Table 1. Detailed clinical information of PPGL samples

Sample ID <sup>a</sup>	GEO Id <sup>b</sup>	Series	Platform <sup>c</sup>	Clinical <sup>d</sup>	Age	Gender
B_EPAS1.DS01	GSM1523217	DS	27K	B	42	F
B_EPAS1.DS02	GSM1523243	DS	27K	B	46	F
B_EPAS1.DS03	GSM1523278	DS	27K	B	78	F
B_EPAS1.DS04	GSM1523279	DS	27K	B	22	F
B_HRAS.DS01	GSM1523281	DS	27K	B	45	M
B_HRAS.DS02	GSM1523301	DS	27K	B	72	F
B_MAX.DS01	GSM1523208	DS	27K	B	39	M
B_MAX.DS02	GSM1523257	DS	27K	B	29	M
M_MAX.DS03	GSM1523236	DS	27K	M	32	M
M_MAX.DS04	GSM1523276	DS	27K	M	46	F
B_NF1.DS01	GSM1523210	DS	27K	B	30	M
B_NF1.DS02	GSM1523232	DS	27K	B	38	F
B_NF1.DS03	GSM1523234	DS	27K	B	53	F
B_NF1.DS04	GSM1523306	DS	27K	B	59	F
B_NF1.DS05	GSM1523258	DS	27K	B	51	F
B_NF1.DS06	GSM1523267	DS	27K	B	47	M
B_NF1.DS07	GSM1523307	DS	27K	B	48	F
B_NF1.DS08	GSM1523308	DS	27K	B	59	M
B_RET.DS01	GSM1523207	DS	27K	B	34	M
B_RET.DS02	GSM1523214	DS	27K	B	48	F
B_RET.DS03	GSM1523216	DS	27K	B	51	F
B_RET.DS04	GSM1523224	DS	27K	B	43	F
B_RET.DS05	GSM1523225	DS	27K	B	28	F
B_RET.DS06	GSM1523228	DS	27K	B	41	F
B_RET.DS07	GSM1523238	DS	27K	B	45	M
B_RET.DS08	GSM1523242	DS	27K	B	45	M
B_RET.DS09	GSM1523254	DS	27K	B	48	F
B_RET.DS10	GSM1523272	DS	27K	B	34	M
B_RET.DS11	GSM1523273	DS	27K	B	24	F
B_RET.DS12	GSM1523274	DS	27K	B	21	F
B_RET.DS13	GSM1523275	DS	27K	B	18	F
B_RET.DS14	GSM1523282	DS	27K	B	29	F
B_RET.DS15	GSM1523286	DS	27K	B	22	F
B_RET.DS16	GSM1523309	DS	27K	B	64	M
B_RET.DS17	GSM1523310	DS	27K	B	77	F
B_RET.DS18	GSM1523291	DS	27K	B	31	F
B_RET.DS19	GSM1523298	DS	27K	B	35	F
B_RET.DS20	GSM1523299	DS	27K	B	24	M

B_RET.DS21	GSM1523290	DS	27K	B	77	F
B_RET.DS22	GSM1523311	DS	27K	B	52	M
B_RET.DS23	GSM1523312	DS	27K	B	29	F
B_RET.DS24	GSM1523313	DS	27K	B	43	F
B_RET.DS25	GSM1523314	DS	27K	B	43	M
B_RET.DS26	GSM1523315	DS	27K	B	51	M
B_SDHB.DS01	GSM1523220	DS	27K	B	14	M
B_SDHB.DS02	GSM1523259	DS	27K	B	56	M
B_SDHB.DS03	GSM1523264	DS	27K	B	22	M
B_SDHB.DS04	GSM1523277	DS	27K	B	10	M
M_SDHB.DS05	GSM1523227	DS	27K	M	63	F
M_SDHB.DS06	GSM1523230	DS	27K	M	20	M
M_SDHB.DS07	GSM1523256	DS	27K	M	32	F
M_SDHB.DS08	GSM1523269	DS	27K	M	24	F
B_SDHD.DS01	GSM1523303	DS	27K	B	57	M
B_SDHD.DS02	GSM1523302	DS	27K	B	27	M
B_TMEM127.DS1	GSM1523271	DS	27K	B	54	F
B_VHL.DS01	GSM1523213	DS	27K	B	17	M
B_VHL.DS02	GSM1523215	DS	27K	B	9	F
B_VHL.DS03	GSM1523221	DS	27K	B	47	F
B_VHL.DS04	GSM1523223	DS	27K	B	47	M
B_VHL.DS05	GSM1523226	DS	27K	B	37	M
B_VHL.DS06	GSM1523231	DS	27K	B	36	M
B_VHL.DS07	GSM1523237	DS	27K	B	13	F
B_VHL.DS08	GSM1523244	DS	27K	B	12	M
B_VHL.DS09	GSM1523260	DS	27K	B	35	M
B_VHL.DS10	GSM1523316	DS	27K	B	42	M
B_VHL.DS11	GSM1523270	DS	27K	B	13	F
B_VHL.DS12	GSM1523284	DS	27K	B	14	M
B_VHL.DS13	GSM1523285	DS	27K	B	30	F
B_VHL.DS14	GSM1523287	DS	27K	B	47	M
B_VHL.DS15	GSM1523288	DS	27K	B	30	M
B_VHL.DS16	GSM1523289	DS	27K	B	42	M
B_VHL.DS17	GSM1523295	DS	27K	B	26	M
B_VHL.DS18	GSM1523263	DS	27K	B	42	M
B_VHL.DS19	GSM1523317	DS	27K	B	38	M
B_VHL.DS20	GSM1523327	DS	27K	B	46	F
B_VHL.DS21	GSM1523305	DS	27K	B	51	F
B_VHL.DS22	GSM1523318	DS	27K	B	13	F
M_VHL.DS23	GSM1523229	DS	27K	M	14	F
B_WT.DS01	GSM1523206	DS	27K	B	76	M
B_WT.DS02	GSM1523209	DS	27K	B	52	F

B_WT.DS03	GSM1523211	DS	27K	B	36	M
B_WT.DS04	GSM1523245	DS	27K	B	49	M
B_WT.DS05	GSM1523328	DS	27K	B	76	M
B_WT.DS06	GSM1523248	DS	27K	B	65	F
B_WT.DS07	GSM1523249	DS	27K	B	70	M
B_WT.DS08	GSM1523250	DS	27K	B	70	F
B_WT.DS09	GSM1523251	DS	27K	B	44	F
B_WT.DS10	GSM1523253	DS	27K	B	69	F
B_WT.DS11	GSM1523320	DS	27K	B	52	M
B_WT.DS12	GSM1523261	DS	27K	B	66	M
B_WT.DS13	GSM1523262	DS	27K	B	64	M
B_WT.DS14	GSM1523265	DS	27K	B	62	M
B_WT.DS15	GSM1523280	DS	27K	B	33	F
B_WT.DS16	GSM1523283	DS	27K	B	61	M
B_WT.DS17	GSM1523319	DS	27K	B	34	F
B_WT.DS18	GSM1523321	DS	27K	B	30	F
B_WT.DS19	GSM1523293	DS	27K	B	37	F
B_WT.DS20	GSM1523294	DS	27K	B	60	F
B_WT.DS21	GSM1523322	DS	27K	B	37	F
B_WT.DS22	GSM1523246	DS	27K	B	27	F
B_WT.DS23	GSM1523297	DS	27K	B	46	M
B_WT.DS24	GSM1523323	DS	27K	B	25	F
B_WT.DS25	GSM1523304	DS	27K	B	25	F
B_WT.DS26	GSM1523324	DS	27K	B	50	F
B_WT.DS27	GSM1523325	DS	27K	B	57	M
B_WT.DS28	GSM1523326	DS	27K	B	39	M
M_WT.DS29	GSM1523233	DS	27K	M	48	F
M_WT.DS30	GSM1523212	DS	27K	M	61	M
M_WT.DS31	GSM1523219	DS	27K	M	64	M
M_WT.DS32	GSM1523222	DS	27K	M	64	M
M_WT.DS33	GSM1523235	DS	27K	M	43	F
M_WT.DS34	GSM1523239	DS	27K	M	56	M
M_WT.DS35	GSM1523240	DS	27K	M	43	F
M_WT.DS36	GSM1523241	DS	27K	M	65	M
M_WT.DS37	GSM1523247	DS	27K	M	66	M
M_WT.DS38	GSM1523252	DS	27K	M	42	M
M_WT.DS39	GSM1523255	DS	27K	M	40	M
M_WT.DS40	GSM1523266	DS	27K	M	67	M
M_WT.DS41	GSM1523268	DS	27K	M	47	F
M_WT.DS42	GSM1523292	DS	27K	M	37	F
M_WT.DS43	GSM1523296	DS	27K	M	63	M
M_WT.DS44	GSM1523300	DS	27K	M	63	M
M_WT.DS45	GSM1523218	DS	27K	M	74	M

M_WT.VSI30	GSM957913	VS1	27K	M	63	F
B_MAX.VSI01	GSM957872	VS1	27K	B	56	F
B_MAX.VSI02	GSM957918	VS1	27K	B	27	M
B_MAX.VSI03	GSM957923	VS1	27K	B	24	M
B_MAX.VSI04	GSM957971	VS1	27K	B	56	F
B_NF1.VSI01	GSM957838	VS1	27K	B	41	F
B_NF1.VSI02	GSM957839	VS1	27K	B	43	M
B_NF1.VSI03	GSM957847	VS1	27K	B	56	F
B_NF1.VSI04	GSM957857	VS1	27K	B	65	F
B_NF1.VSI05	GSM957861	VS1	27K	B	37	F
B_NF1.VSI06	GSM957863	VS1	27K	B	51	F
M_NF1.VSI07	GSM957866	VS1	27K	M	40	M
B_NF1.VSI08	GSM957868	VS1	27K	B	57	M
B_NF1.VSI09	GSM957869	VS1	27K	B	52	F
B_NF1.VSI10	GSM957874	VS1	27K	B	53	M
B_NF1.VSI11	GSM957877	VS1	27K	B	73	M
B_NF1.VSI12	GSM957878	VS1	27K	B	55	F
B_NF1.VSI13	GSM957879	VS1	27K	B	42	F
B_NF1.VSI14	GSM957880	VS1	27K	B	63	M
B_NF1.VSI15	GSM957883	VS1	27K	B	33	F
B_NF1.VSI16	GSM957889	VS1	27K	B	38	F
B_NF1.VSI17	GSM957898	VS1	27K	B	57	M
B_NF1.VSI18	GSM957906	VS1	27K	B	52	F
B_NF1.VSI19	GSM957909	VS1	27K	B	32	F
B_NF1.VSI20	GSM957912	VS1	27K	B	51	F
M_NF1.VSI21	GSM957932	VS1	27K	M	41	M
B_NF1.VSI22	GSM957933	VS1	27K	B	65	M
B_NF1.VSI23	GSM957938	VS1	27K	B	37	F
B_NF1.VSI24	GSM957941	VS1	27K	B	39	M
B_NF1.VSI25	GSM957942	VS1	27K	B	53	F
B_NF1.VSI26	GSM957946	VS1	27K	B	61	F
B_NF1.VSI27	GSM957948	VS1	27K	B	62	F
B_NF1.VSI28	GSM957953	VS1	27K	B	42	F
B_NF1.VSI29	GSM957959	VS1	27K	B	46	M
B_NF1.VSI30	GSM957975	VS1	27K	B	53	M
B_RET.VSI01	GSM957844	VS1	27K	B	29	F
B_RET.VSI02	GSM957862	VS1	27K	B	51	F
B_RET.VSI03	GSM957873	VS1	27K	B	59	M
B_RET.VSI04	GSM957884	VS1	27K	B	44	F
B_RET.VSI05	GSM957895	VS1	27K	B	18	F
B_RET.VSI06	GSM957896	VS1	27K	B	62	M
B_RET.VSI07	GSM957905	VS1	27K	B	25	M
B_RET.VSI08	GSM957924	VS1	27K	B	76	F
B_RET.VSI09	GSM957926	VS1	27K	B	27	F

B_RET.VSI10	GSM957937	VS1	27K	B	37	F
B_RET.VSI11	GSM957950	VS1	27K	B	29	F
B_RET.VSI12	GSM957968	VS1	27K	B	39	F
B_RET.VSI13	GSM957969	VS1	27K	B	52	F
B_SDHA.VSI01	GSM957963	VS1	27K	B	32	F
B_SDHB.VSI01	GSM957853	VS1	27K	B	31	F
M_SDHB.VSI02	GSM957888	VS1	27K	M	38	F
M_SDHB.VSI03	GSM957885	VS1	27K	M	44	M
M_SDHB.VSI04	GSM957886	VS1	27K	M	24	F
M_SDHB.VSI05	GSM957910	VS1	27K	M	29	M
B_SDHB.VSI06	GSM957928	VS1	27K	B	21	F
M_SDHB.VSI07	GSM957930	VS1	27K	M	28	M
M_SDHB.VSI08	GSM957934	VS1	27K	M	59	M
B_SDHB.VSI09	GSM957967	VS1	27K	B	33	F
B_SDHB.VSI10	GSM957972	VS1	27K	B	10	F
B_SDHB.VSI11	GSM957976	VS1	27K	B	20	F
B_SDHB.VSI12	GSM957977	VS1	27K	B	47	F
M_SDHB.VSI13	GSM1519448	VS1	27K	M	28	M
M_SDHB.VSI14	GSM1519450	VS1	27K	M	56	F
M_SDHB.VSI15	GSM1519451	VS1	27K	M	28	M
M_SDHB.VSI16	GSM1519452	VS1	27K	M	28	M
B_SDHC.VSI01	GSM957981	VS1	27K	B	16	F
B_SDHD.VSI01	GSM957852	VS1	27K	B	45	M
B_SDHD.VSI02	GSM957865	VS1	27K	B	32	M
B_SDHD.VSI03	GSM957890	VS1	27K	B	31	F
B_TM127.VSI01	GSM957858	VS1	27K	B	44	F
B_VHL.VSI01	GSM957840	VS1	27K	B	45	M
B_VHL.VSI02	GSM957843	VS1	27K	B	46	M
B_VHL.VSI03	GSM957851	VS1	27K	B	12	M
B_VHL.VSI04	GSM957856	VS1	27K	B	26	F
B_VHL.VSI05	GSM957881	VS1	27K	B	22	M
B_VHL.VSI06	GSM957882	VS1	27K	B	17	M
B_VHL.VSI07	GSM957887	VS1	27K	B	15	M
B_VHL.VSI08	GSM957902	VS1	27K	B	10	M
B_VHL.VSI09	GSM957904	VS1	27K	B	25	M
B_VHL.VSI10	GSM957907	VS1	27K	B	10	F
B_VHL.VSI11	GSM957916	VS1	27K	B	40	M
M_VHL.VSI12	GSM957927	VS1	27K	M	65	F
M_VHL.VSI13	GSM957935	VS1	27K	M	36	F
B_VHL.VSI14	GSM957939	VS1	27K	B	19	F
B_VHL.VSI15	GSM957943	VS1	27K	B	7	F
B_VHL.VSI16	GSM957956	VS1	27K	B	15	F
B_VHL.VSI17	GSM957962	VS1	27K	B	49	F
B_VHL.VSI18	GSM957966	VS1	27K	B	55	F

B_VHL.VSI19	GSM957978	VS1	27K	B	26	M
B_VHL.VSI20	GSM957979	VS1	27K	B	16	F
B_VHL.VSI21	GSM957980	VS1	27K	B	27	M
M_VHL.VSI22	GSM1519444	VS1	27K	M	26	F
M_VHL.VSI23	GSM1519445	VS1	27K	M	26	F
M_VHL.VSI24	GSM1519449	VS1	27K	M	13	M
B_WT.VSI01	GSM957837	VS1	27K	B	53	F
B_WT.VSI02	GSM957841	VS1	27K	B	60	M
B_WT.VSI03	GSM957842	VS1	27K	B	51	M
B_WT.VSI04	GSM957845	VS1	27K	B	41	F
B_WT.VSI05	GSM957846	VS1	27K	B	69	M
B_WT.VSI06	GSM957848	VS1	27K	B	28	F
B_WT.VSI07	GSM957849	VS1	27K	B	40	M
B_WT.VSI08	GSM957850	VS1	27K	B	68	F
B_WT.VSI09	GSM957854	VS1	27K	B	66	M
B_WT.VSI10	GSM957855	VS1	27K	B	47	F
B_WT.VSI11	GSM957859	VS1	27K	B	41	F
B_WT.VSI12	GSM957860	VS1	27K	B	46	M
M_WT.VSI13	GSM957864	VS1	27K	M	46	F
B_WT.VSI14	GSM957867	VS1	27K	B	49	M
B_WT.VSI15	GSM957870	VS1	27K	B	31	M
B_WT.VSI16	GSM957871	VS1	27K	B	44	F
B_WT.VSI17	GSM957875	VS1	27K	B	37	F
B_WT.VSI18	GSM957876	VS1	27K	B	45	F
B_WT.VSI19	GSM957891	VS1	27K	B	34	F
B_WT.VSI20	GSM957892	VS1	27K	B	64	M
B_WT.VSI21	GSM957893	VS1	27K	B	50	F
B_WT.VSI22	GSM957894	VS1	27K	B	44	F
B_WT.VSI23	GSM957897	VS1	27K	B	55	M
B_WT.VSI24	GSM957899	VS1	27K	B	23	F
B_WT.VSI25	GSM957900	VS1	27K	B	27	M
B_WT.VSI26	GSM957901	VS1	27K	B	47	M
B_WT.VSI27	GSM957903	VS1	27K	B	55	F
B_WT.VSI28	GSM957908	VS1	27K	B	28	F
B_WT.VSI29	GSM957911	VS1	27K	B	58	F
B_WT.VSI31	GSM957914	VS1	27K	B	59	M
B_WT.VSI32	GSM957915	VS1	27K	B	60	F
B_WT.VSI33	GSM957917	VS1	27K	B	21	M
B_WT.VSI34	GSM957919	VS1	27K	B	40	F
B_WT.VSI35	GSM957920	VS1	27K	B	36	F
B_WT.VSI36	GSM957921	VS1	27K	B	58	F
B_WT.VSI37	GSM957922	VS1	27K	B	82	F
B_WT.VSI38	GSM957925	VS1	27K	B	64	F
B_WT.VSI39	GSM957929	VS1	27K	B	44	M

M_WT.VSI40	GSM957931	VS1	27K	M	15	F
M_WT.VSI41	GSM957936	VS1	27K	M	27	F
B_WT.VSI42	GSM957940	VS1	27K	B	66	F
B_WT.VSI43	GSM957944	VS1	27K	B	60	M
B_WT.VSI44	GSM957945	VS1	27K	B	47	M
B_WT.VSI45	GSM957947	VS1	27K	B	47	F
B_WT.VSI47	GSM957951	VS1	27K	B	58	F
B_WT.VSI48	GSM957952	VS1	27K	B	44	F
B_WT.VSI49	GSM957954	VS1	27K	B	74	F
B_WT.VSI50	GSM957955	VS1	27K	B	37	F
B_WT.VSI51	GSM957957	VS1	27K	B	37	F
B_WT.VSI52	GSM957958	VS1	27K	B	70	F
B_WT.VSI53	GSM957960	VS1	27K	B	61	F
B_WT.VSI54	GSM957961	VS1	27K	B	40	F
B_WT.VSI55	GSM957964	VS1	27K	B	67	M
B_WT.VSI56	GSM957965	VS1	27K	B	63	F
B_WT.VSI57	GSM957970	VS1	27K	B	52	F
B_WT.VSI58	GSM957973	VS1	27K	B	66	F
B_WT.VSI59	GSM957974	VS1	27K	B	58	F
M_WT.VSI60	GSM1519443	VS1	27K	M	35	M
M_WT.VSI61	GSM1519446	VS1	27K	M	40	F
M_WT.VSI62	GSM1519447	VS1	27K	M	40	F
B_HRAS.VS2-1	-	VS2	Pyro	B	51	F
M_HRAS.VS2-2	-	VS2	Pyro	M	62	F
M_SDHA.VS2-1	-	VS2	Pyro	M	71	M
B_SDHB.VS2-1	-	VS2	Pyro	B	19	F
B_SDHB.VS2-2	-	VS2	Pyro	B	34	F
B_SDHB.VS2-3	-	VS2	Pyro	B	34	F
B_VHL.VS2-1	-	VS2	Pyro	B	37	M
B_VHL.VS2-2	-	VS2	Pyro	B	51	M
M_VHL.VS2-3	-	VS2	Pyro	M	11	M
B_WT.VS2-1	-	VS2	Pyro	B	64	M
B_WT.VS2-2	-	VS2	Pyro	B	45	F
B_WT.VS2-3	-	VS2	Pyro	B	9	M
B_WT.VS2-4	-	VS2	Pyro	B	74	M
B_WT.VS2-5	-	VS2	Pyro	B	46	F
B_WT.VS2-6	-	VS2	Pyro	B	66	M
B_WT.VS2-7	-	VS2	Pyro	B		
B_WT.VS2-8	-	VS2	Pyro	B	42	M
M_WT.VS2-10	-	VS2	Pyro	M	65	M
M_WT.VS2-11	-	VS2	Pyro	M	74	M
M_WT.VS2-12	-	VS2	Pyro	M	63	M
M_WT.VS2-13	-	VS2	Pyro	M	46	F
M_WT.VS2-14	-	VS2	Pyro	M	70	F
M_WT.VS2-15	-	VS2	Pyro	M	65	F
M_WT.VS2-16	-	VS2	Pyro	M	64	F

M_WT.VS2-17	-	VS2	Pyro	M	61	F
M_WT.VS2-18	-	VS2	Pyro	M	42	M
M_WT.VS2-19	-	VS2	Pyro	M	43	M
M_WT.VS2-20	-	VS2	Pyro	M	62	M
M_WT.VS2-21	-	VS2	Pyro	M	23	F
M_WT.VS2-22	-	VS2	Pyro	M	62	F
M_WT.VS2-23	-	VS2	Pyro	M	34	M
M_WT.VS2-24	-	VS2	Pyro	M	69	F
M_WT.VS2-9	-	VS2	Pyro	M	65	M

a) Sample Id in following formate: B/M (without or with metastasis. b) GEO sample identifier. c) 27k Sympathetic paraganglioma; Meta: Metastasis. f) Diagnosis was clinically determined. g) Diagnosis of PC



Location <sup>e</sup>	Genotype	Mutation nucleotide	Mutation protein	Metastatic Event	Metastasis Delay (Months)
PGL	EPAS1	c.1600_1608del	p.Pro534_Asp536del	No	0
PCC	EPAS1	c.1599_1604del	p.Ile533_Pro534del	No	0
PGL	EPAS1	c.1615G>T	p.Asp539Tyr	No	0
PCC	EPAS1	c.1588G>A	p.A530Thr	No	0
PCC	HRAS	c.182A>G	p.Gln61Arg	No	0
PCC	HRAS	c.182A>G	p.Gln61Arg	No	0
PCC	MAX	c.223C>T	p.Arg75X	No	0
PCC	MAX	c.223C>T	p.Arg75X	No	0
PCC	MAX	c.295+1G>A	p.?	Yes	0
PCC	MAX	c.1A>G	p.Met1?	Yes	0
PCC	NF1	CD <sup>f</sup>	CD <sup>f</sup>	No	0
PCC	NF1	c.1062+2T>C	p.?	No	0
PCC	NF1	CD <sup>f</sup>	CD <sup>f</sup>	No	0
PCC	NF1	CD <sup>f</sup>	CD <sup>f</sup>	No	0
PCC	NF1	c.6855C>A	p.Tyr2285X	No	0
PCC	NF1	CD <sup>f</sup>	CD <sup>f</sup>	No	0
PCC	NF1	CD <sup>f</sup>	CD <sup>f</sup>	No	0
PCC	NF1	CD <sup>f</sup>	CD <sup>f</sup>	No	0
PCC	RET	c.1853G>T	p.Cys618Phe	No	0
PCC	RET	c.1901G>A	p.Cys634Tyr	No	0
PCC	RET	c.1901G>A	p.Cys634Tyr	No	0
PCC	RET	c.1833C>T	p.Cys611Phe	No	0
PCC	RET	c.1900T>C	p.Cys634Arg	No	0
PCC	RET	c.1900T>A	p.Cys634Ser	No	0
PCC	RET	c.1901G>A	p.Cys634Tyr	No	0
PCC	RET	c.1900T>C	p.Cys634Arg	No	0
PCC	RET	c.2753T>C	p.Met918Thr	No	0
PCC	RET	c.2753C>T	p.Met918Thr	No	0
PCC	RET	c.1900T>C	p.Cys634Arg	No	0
PCC	RET	c.1826G>C	p.Cys609Ser	No	0
PCC	RET	c.2753C>T	p.Met918Thr	No	0
PCC	RET	c.1901G>C	p.Cys634Ser	No	0
PCC	RET	c.1891G>T	p.Asp631Tyr	No	0
PCC	RET	c.1901G>A	p.Cys634Tyr	No	0
PCC	RET	c.1900T>C	p.Cys634Arg	No	0
PCC	RET	c.1901G>A	p.Cys634Tyr	No	0
PCC	RET	CD <sup>f</sup>	CD <sup>f</sup>	No	0
PCC	RET	c.1900T>C	p.Cys634Arg	No	0

PCC	RET	c.1900T>C	p.Cys634Arg	No	0
PCC	RET	c.1852T>G	p.Cys618Gly	No	0
PCC	RET	c.2753T>C	p.Met918Thr	No	0
PCC	RET	c.1901G>A	p.Cys634Tyr	No	0
PCC	RET	c.1901G>A	p.Cys634Tyr	No	0
PCC	RET	c.1901G>A	p.Cys634Tyr	No	0
PGL	SDHB	exon 1 deletion	p.?	No	0
PGL	SDHB	c.464 C>G	p.Pro155Arg	No	0
PGL	SDHB	c.689G>A	p.Arg230His	No	0
PCC	SDHB	c.158_c.200+112del	p.?	No	0
PGL	SDHB	c.727T>A	p.Cys243Ser	Yes	36
PGL	SDHB	c.423+1G>A	p.?	Yes	0
PGL	SDHB	c.166_170delCCTCA	p.Pro56Tyrfs*5	Yes	0
PCC	SDHB	exon 1 deletion	p.?	Yes	3
PCC	SDHD	c.64C>T	p.Arg22X	No	0
PGL	SDHD	SOON	SOON	No	0
PCC	TMEM127	c.245-1G>T	p.?	No	0
PCC	VHL	c.482G>A	p.Arg161Gln	No	0
PCC	VHL	c.482G>A	p.Arg161Gln	No	0
PCC	VHL	CD <sup>f</sup>	CD <sup>f</sup>	No	0
PCC	VHL	c.500G>A	p.Arg167Gln	No	0
PCC	VHL	c.482G>A	p.Arg161Gln	No	0
PCC	VHL	c.277G>A	p.Gly93Ser	No	0
PCC	VHL	c.482G>A	p.Arg161Gln	No	0
PCC	VHL	c.523T>A	p.Tyr175Asn	No	0
PCC	VHL	c.260T>C	p.Val87Ala	No	0
PGL	VHL	c.467A>G	p.Tyr156Cys	No	0
PCC	VHL	CD <sup>f</sup>	CD <sup>f</sup>	No	0
PCC	VHL	c.460C>A	p.Pro154Thr	No	0
PCC	VHL	c.500G>A	p.Arg167Gln	No	0
PCC	VHL	c.414A>G	p.Pro138Pro	No	0
PCC	VHL	c.256C>T	p.Pro86Ser	No	0
PCC	VHL	c.467A>G	p.Tyr156Cys	No	0
PCC	VHL	c.481C>G	p.Arg161Gly	No	0
PGL	VHL	c.467A>G	p.Tyr156Cys	No	0
PCC	VHL	c.500G>A	p.Arg167Gln	No	0
PCC	VHL	c.241C>T	p.Pro81Ser	No	0
PCC	VHL	c.389T>G	p.Val130Gly	No	0
PCC	VHL	c.533T>C	p.Leu178Pro	No	0
PCC	VHL	c.277G>A	p.Gly93Ser	Yes	24
PGL	WT	-	-	No	0
PCC	WT	-	-	No	0



meta	FH	c.349G>C	p.Ala117Pro	Yes	0
PCC	MAX	c.25delG	p.Val9TrpfsX56	No	0
PCC	MAX	entire MAX deletion	p.?	No	0
PCC	MAX	c.140_157del	p.Arg47Ser52del	No	0
PCC	MAX	c.103C>T	p.Arg35Cys	No	0
PCC	NF1	c.3025del	p.Ile1009phefs*3	No	0
PCC	NF1	c.7393del	p.Arg2465Glyfs*3	No	0
PCC	NF1	c.22409+1G>A	p.Ala776_Gln803del	No	0
PCC	NF1	c.3158C>A	p.Ser1053*	No	0
PCC	NF1	CD <sup>f</sup>	CD <sup>f</sup>	No	0
PCC	NF1	c.3398_3399del	p.Glu1133Aspfs*61	No	0
PCC	NF1	c.489del	p.Glu163Aspfs*61	Yes	0
PCC	NF1	Whole gene deletion	No protein	No	0
PCC	NF1	c.2546del	p.Gly849Glyfs*29	No	0
PCC	NF1	c.7519C>T	p.Gln2528*	No	0
PCC	NF1	c.7583C>G	p.Ser2549*	No	0
PCC	NF1	c.5675_5678del	p.Lys1913Asnfs*11	No	0
PCC	NF1	CD <sup>f</sup>	CD <sup>f</sup>	No	0
PCC	NF1	CD <sup>f</sup>	CD <sup>f</sup>	No	0
PCC	NF1	CD <sup>f</sup>	CD <sup>f</sup>	No	0
PCC	NF1	CD <sup>f</sup>	CD <sup>f</sup>	No	0
PCC	NF1	c.8046_8047delinsTT	p.Gln2703*	No	0
PCC	NF1	c.7096_7101del	p.Asn2366_2367del	No	0
PCC	NF1	CD <sup>f</sup>	CD <sup>f</sup>	No	0
PCC	NF1	c.392_408del	p.Ala131Glyfs*18	No	0
Meta	NF1	c.3721C>T	p.Arg1241*	Yes	0
PCC	NF1	CD <sup>f</sup>	CD <sup>f</sup>	No	0
PCC	NF1	c.397del	p.Ala1321Leufs*33	No	0
PCC	NF1	c.2533del	p.Cys845Valfs*33	No	0
PCC	NF1	c.1885G>A	p.Gln616Glyfs*4	No	0
PCC	NF1	c.3196+2T>G/c.5184insA	p.Asn1039_Arg1065del/p.Asp1728Argfs*	No	0
PCC	NF1	c.205-1G>C	p.Arg69Asnfs*7	No	0
PCC	NF1	c.2939_2958del	p.Ser980*	No	0
PCC	NF1	c.6800_6801del	p.Gln2287Argfs*18	No	0
PCC	NF1	c.971_976del	p.Cys324*	No	0
PCC	RET	c.1901G>A	p.Cys634Tyr	No	0
PCC	RET	c.2753T>C	p.Met918Thr	No	0
PCC	RET	c.2753T>C	p.Met918Thr	No	0
PCC	RET	[c.2647G>T; c.2648C>T]	p.Ala883Phe	No	0
PCC	RET	c.1900T>C	p.Cys634Arg	No	0
PCC	RET	c.2753T>C	p.Met918Thr	No	0
PCC	RET	c.1900T>C	p.Cys634Arg	No	0
PCC	RET	c.1597G>T	p.Gly533Cys	No	0
PCC	RET	c.1900T>C	p.Cys634Arg	No	0

PCC	RET	[c.1901G>T;c.1902C>G]	p.Cys634Leu	No	0
PCC	RET	c.2753T>C	p.Met918Thr	No	0
PCC	RET	c.2753T>C	p.Met918Thr	No	0
PCC	RET	c.1894_1899del	p.Glu632Leu633del	No	0
PCC	SDHA	c.1765C>T	p.Arg589Trp	No	0
PCC	SDHB	c.136C>G	p.Arg46Gly	No	0
Meta	SDHB	c.758G>A	p.Cys253Tyr	Yes	0
PGL	SDHB	c.689G>A	p.Arg230His	Yes	0
PGL/PCC <sup>B</sup>	SDHB	c.620_621del	p.Leu207ArgfsX14	Yes	33
PGL	SDHB	c.127G>C	p.Ala43Pro	Yes	12
PCC	SDHB	c.758G>A	p.Cys253Tyr	No	0
PCC	SDHB	c.1-?_72+?del	del exon 1	Yes	0
PCC	SDHB	c.203G>A	p.Cys68Tyr	Yes	0
PGL	SDHB	c.200+1G>A	p.?	No	0
PGL	SDHB	c.713del	p.Phe238SerfsX10	No	0
PCC	SDHB	c.166_170del	p.Pro56TyrfsX5	No	0
PGL	SDHB	c.540+2T>C	p.?	No	0
PCC	SDHB	c.137G>A	p.Arg46Gln	Yes	0
PCC	SDHB	c.689G>A	p.Arg230His	Yes	0
PGL	SDHB	c.137G>A	p.Arg46Gln	Yes	0
PGL	SDHB	c.137G>A	p.Arg46Gln	Yes	243
PGL	SDHC	c.21-?_77+?del	del exon 2	No	0
PCC	SDHD	c.64C>T	p.Arg22X	No	0
PGL	SDHD	c.64C>T	p.Arg22X	No	0
PGL	SDHD	c.202dup	p.Ser68LysfsX46	No	0
PCC	TMEM127	c.156G>A	p.Ala47Asp	No	0
PCC	VHL	c.462A>T	p.Pro154Pro	No	0
PCC	VHL	c.293A>G	p.Tyr98Cys	No	0
PCC	VHL	c.290C>T	p.Pro97Leu	No	0
PCC	VHL	c.193T>G	p.Ser65Ala	No	0
PCC	VHL	c.1-?_642+?del	del totale	No	0
PCC	VHL	c.467A>G	p.Tyr156Cys	No	0
PCC	VHL	c.533T>C	p.Leu178Pro	No	0
PCC	VHL	c.499C>T	p.Arg167Trp	No	0
PCC	VHL	c.482G>A	p.Arg161Gln	No	0
PCC	VHL	c.290C>T	p.Pro97Leu	No	0
PCC	VHL	c.642A>T	p.X214Cys	No	0
PCC	VHL	c.466T>C	p.Tyr156His	Yes	0
PGL	VHL	c.464-?_642+?del	del exon 3	Yes	0
PCC	VHL	c.292T>C	p.Tyr98His	No	0
PCC	VHL	c.482G>A	p.Arg161Gln	No	0
PCC	VHL	c.500G>A	p.Arg167Gln	No	0
PCC	VHL	c.360A>C	p.Arg120Ser	No	0
PCC	VHL	c.475A>G	p.Lys159Glu	No	0



PCC	WT	-	-	Yes	4
PCC	WT	-	-	Yes	51
PCC	WT	-	-	No	0
PCC	WT	-	-	No	0
PCC	WT	-	-	No	0
PGL	WT	-	-	No	0
PCC	WT	-	-	No	0
PCC	WT	-	-	No	0
PCC	WT	-	-	No	0
PCC	WT	-	-	No	0
PCC	WT	-	-	No	0
PCC	WT	-	-	No	0
PCC	WT	-	-	No	0
PCC	WT	-	-	No	0
PCC	WT	-	-	No	0
PCC	WT	-	-	No	0
PCC	WT	-	-	No	0
PCC	WT	-	-	No	0
PCC	WT	-	-	No	0
PCC	WT	-	-	No	0
PCC	WT	-	-	No	0
PCC	WT	-	-	No	0
PCC	WT	-	-	No	0
PCC	WT	-	-	No	0
PGL	WT	-	-	Yes	0
PGL	WT	-	-	Yes	40
PGL	WT	-	-	Yes	40
PGL	HRAS	c.181C>A	p.Cln61Lys	No	0
PCC	HRAS	c.182A>G	p.Gln61Arg	Yes	0
PGL	SDHA	c.457-1A>G		Yes	3
PGL	SDHB	Gross deletion exon 1	IVS2+33G>A	No	0
PGL	SDHB	c.278G>A	p.Cys93Tyr	No	0
PGL	SDHB	c.595delTACTGGTGGinsGG	p.?	No	0
PCC	VHL	c.482G>A	p.Arg161Gln	No	0
PCC	VHL	c.188T>A*	p.Leu63Gln	No	0
PCC	VHL	c.100_181del&100_101insC	p.Arg167Trp	Yes	72
PGL	WT			No	0
PCC	WT			No	0
PCC	WT			No	0
PCC	WT			No	0
PCC	WT			No	0
PCC	WT			No	0
PCC	WT			No	0
PCC	WT			No	0
PCC	WT			No	0
PCC	WT			No	0
PCC	WT			Yes	36
PCC	WT			Yes	0
PCC	WT			Yes	0
PCC	WT			Yes	26
PCC	WT			Yes	NA
PCC	WT			Yes	NA
PCC	WT			Yes	0

PCC	WT			Yes	0
PCC	WT			Yes	28
PCC	WT			Yes	0
PCC	WT			Yes	0
PCC	WT			Yes	NA
PGL	WT			Yes	0
PGL	WT			Yes	0
PCC	WT			Yes	12
PGL	WT			Yes	48

(: 27K methylation array by Illumina; or Pyro: Bisulfite pyrosequencing. d) B: without metastasis or M: with  
 :C or PGL uncertain whether PGL is located adjacent to adrenal gland or PCC very large and invasive.



Deceased (death due to metastasis)	Follow Up (Months)	Hierarchial Cluster Membership	Consensus Cluster Membership
No	60	C1B	C1B
No	0	C1B	C1B
No	0	C2	C2
No	196	C1B	C1B
No	0	C2	C2
No	40	C2	C2
No	0	C2	C2
No	50	C2	C2
N/A	0	C2	C2
N/A	0	C2	C2
No	0	C1B	C1B
No	0	C2	C2
No	0	C2	C2
No	0	C2	C2
No	120	C2	C2
No	0	C1B	C1B
No	0	C1B	C1B
No	39	C2	C2
No	113	C1B	C1B
No	221	C1B	C1B
No	0	C1B	C2
No	96	C2	C2
No	29	C2	C2
No	0	C2	C2
No	0	C2	C2
No	0	C2	C2
No	0	C2	C2
No	0	C2	C2
No	0	C2	C2
No	0	C2	C2
No	0	C2	C2
No	0	C2	C2
No	0	C2	C2
No	0	C2	C2
No	44	C2	C2
No	24	C1B	C2
No	0	C2	C2
No	0	C2	C2
No	0	C1B	C1B
No	0	C1B	C2

No	0	C2	C2
No	116	C2	C2
No	48	C2	C2
No	180	C2	C2
No	180	C2	C2
No	42	C2	C2
No	16	C1B	C1A
No	43	C1A	C1A
No	152	C1A	C1A
No	0	C1A	C1A
Yes	39	C1A	C1A
No	24	C1A	C1A
Yes	69	C1A	C1A
Yes	70	C1A	C1A
No	67	C1A	C1A
No	54	C1A	C1A
No	0	C2	C2
No	3	C1B	C1B
No	85	C1B	C1A
No	48	C1B	C1B
No	0	C1B	C1B
No	60	C1B	C1B
No	0	C1B	C1B
No	0	C1B	C1B
No	40	C1B	C1B
No	8	C1B	C1B
No	42	C1B	C1B
No	63	C1B	C1B
No	4	C1B	C1B
No	0	C1B	C1B
No	36	C1B	C1B
No	0	C1B	C1B
No	0	C1B	C1B
No	6	C1B	C1B
No	42	C1B	C1B
No	83	C1B	C1B
No	0	C2	C2
No	5	C1B	C1B
No	63	C1B	C1B
No	49	C1B	C1B
No	0	C2	C2
No	26	C2	C2

No	62	C2	C2
No	0	C2	C2
No	36	C2	C2
No	43	C1B	C1B
No	57	C2	C2
No	64	C2	C2
No	0	C2	C2
No	0	C2	C2
No	35	C2	C2
No	53	C2	C2
No	0	C2	C2
No	0	C2	C2
No	30	C1A	C1A
No	4	C1B	C1B
No	15	C2	C2
No	58	C2	C2
No	58	C2	C2
No	58	C2	C2
No	68	C1A	C1A
No	0	C1B	C1B
No	48	C1A	C1A
No	18	C1A	C1A
No	83	C2	C2
No	83	C2	C2
No	1	C2	C2
No	3	C2	C2
No	0	C1B	C1B
No	9	C1B	C1B
No	36	C2	C2
Yes	72	C1A	C1A
yes	108	C1B	C1B
No	32	C2	C2
No	82	C1B	C1B
yes	80	C2	C2
No	72	C1B	C1B
No	72	C1B	C1A
No	121	C2	C2
No	121	C1B	C1A
No	33	C2	C2
No	100	C1B	C1B
yes	33	C1A	C2
yes	33	C2	C2
No	31	C2	C1B

No	3	-	-
No	26	-	-
No	9	-	-
No	5	-	-
No	125	-	-
No	90	-	-
No	1	-	-
No	68	-	-
No	26	-	-
No	67	-	-
No	7	-	-
No	21	-	-
No	22	-	-
No	79	-	-
No	8	-	-
No	62	-	-
No	9	-	-
No	98	-	-
No	74	-	-
No	7	-	-
No	50	-	-
No	22	-	-
No	68	-	-
No	27	-	-
No	3	-	-
No	60	-	-
No	6	-	-
No	28	-	-
No	81	-	-
No	44	-	-
No	31	-	-
No	115	-	-
No	15	-	-
No	35	-	-
No	13	-	-
No	38	-	-
No	2	-	-
No	21	-	-
No	42	-	-
No	150	-	-
No	59	-	-
No	84	-	-
No	32	-	-
No	33	-	-

No	54	-	-
No	47	-	-
No	7	-	-
No	48	-	-
No	5	-	-
No	51	-	-
YES	24	-	-
YES	8	-	-
YES	72	-	-
YES	71	-	-
No	85	-	-
YES	5	-	-
No	112	-	-
No	4	-	-
No	55	-	-
No	40	-	-
No	50	-	-
yes	7	-	-
yes	104	-	-
yes	104	-	-
yes	278	-	-
No	0	-	-
No	101	-	-
No	87	-	-
No	7	-	-
No	183	-	-
No	23	-	-
No	88	-	-
No	36	-	-
No	31	-	-
YES	62	-	-
No	12	-	-
No	139	-	-
No	148	-	-
No	104	-	-
No	79	-	-
No	9	-	-
No	34	-	-
No	38	-	-
No	45	-	-
No	118	-	-
No	11	-	-
No	28	-	-
No	12	-	-

No	5	-	-
No	40	-	-
No	0	-	-
yes	278	-	-
yes	92	-	-
No	82	-	-
No	54	-	-
No	11	-	-
No	31	-	-
No	18	-	-
No	57	-	-
No	15	-	-
No	22	-	-
No	54	-	-
No	68	-	-
No	20	-	-
No	85	-	-
No	24	-	-
No	158	-	-
No	86	-	-
No	31	-	-
No	28	-	-
No	0	-	-
No	25	-	-
No	74	-	-
No	40	-	-
No	68	-	-
No	61	-	-
No	142	-	-
No	34	-	-
YES	17	-	-
No	120	-	-
No	96	-	-
No	43	-	-
No	6	-	-
No	4	-	-
YES	32	-	-
No	9	-	-
No	7	-	-
No	42	-	-
YES	5	-	-
No	6	-	-
No	14	-	-
No	81	-	-

YES	100	-	-
No	161	-	-
No	5	-	-
No	56	-	-
No	67	-	-
No	21	-	-
No	44	-	-
No	11	-	-
No	22	-	-
No	42	-	-
No	60	-	-
No	10	-	-
No	26	-	-
No	13	-	-
No	48	-	-
No	19	-	-
No	54	-	-
No	37	-	-
No	1	-	-
No	107	-	-
yes	92	-	-
yes	92	-	-
No	68	-	-
No	44	-	-
Yes	8	-	-
no	36	-	-
No	90	-	-
No	180	-	-
No	66	-	-
No	104	-	-
No	157	-	-
No	49	-	-
No	91	-	-
No	40	-	-
No	89	-	-
No	52	-	-
No	80	-	-
No		-	-
No	7	-	-
No	80	-	-
No		-	-
No	19	-	-
Yes	18	-	-
No		-	-
No		-	-
No	0	-	-

No	70	-	-
Yes	34	-	-
No	86	-	-
No	124	-	-
No		-	-
No	3	-	-
No	100	-	-
No	19	-	-
No	19	-	-

metastasis. e) Tumor location, PCC: Adrenal pheochromocytoma; PGL: